

IN THE CLAIMS:

1-62 (canceled)

63. (currently amended) A knife edge conditioning apparatus for manually modifying the physical structure along an elongated edge of a stroked knife blade, the blade having two faces that at their terminus have been sharpened forming two edge facets that intersect to create the elongated edge at the junction of the two facets, said apparatus comprising at least one precision knife guide having a planar knife face contacting surface along which the face of the blade can be stroked in sustained moving contact with a hardened surface of an object located adjacent to and at an angle to said guide surface, said object being non-motor-driven, said hardened surface being of non-planar shape to maintain sustained contact with and locally stress and fracture the edge of the blade at the location of contact with said hardened surface on repeated stroking to create a microscopic serration along the edge, and said hardened surface being substantially free of abrasive particles and free of sharp edges characteristic of abrading, skiving and metal removing tools, and where said object in a rest position can be displaced by an exerting force exerted by the blade edge against said hardened surface of said object against a predetermined restraining force of a resilient structure that upon release of said exerting force repositions said hardened surface to said rest position.

64. (previously presented) An apparatus according to Claim 63 where said hardened surface has an arcuate shape at said location of contact.

65. (previously presented) An apparatus according to Claim 63 where said precision knife guide has an elongated flat surface which comprises said planar knife face contacting surface.

66. (previously presented) An apparatus according to Claim 63 where said object has said hardened surface at two opposite locations, and one of said knife guides being disposed at each of said two opposite locations.

67. (previously presented) An apparatus according to Claim 63 where said hardened surface is the surface of a stationary object.

68. (previously presented) An apparatus according to Claim 63 where said hardened surface is the surface of a rotatable cylindrical object.

69. (previously presented) An apparatus according to Claim 68 where a braking mechanism prevents rotation of said rotatable cylindrical object unless a torque is applied to said cylindrical object in excess of that applied by said braking mechanism.

70. (previously presented) An apparatus according to Claim 63 where said object is adjustable in order that different areas of said hardened surface of said object can be selected as said location of contact.

71. (previously presented) An apparatus according to Claim 63 where said hardened surface of said object is serially grooved with a plurality of grooves at said location of contact, and said grooves being oriented angularly to cross the elongated edge as the edge is moved across said grooved hardened surface.

72. (previously presented) An apparatus according to Claim 63 where said hardened surface has a hardness above Rockwell C-60.

73. (previously presented) An apparatus according to Claim 63 where said apparatus is a conditioning station in a device having a handle outwardly of said station.

74. (previously presented) An apparatus according to Claim 63 where there are at least two linearly aligned of said objects each having said hardened surface, and said knife guide having said planar knife face contacting surface for use with said at least two objects.

75. (previously presented) An apparatus according to Claim 63 where there are two of said knife guides which are parallel to each other with said object between said knife guides.

76. (previously presented) ~~An apparatus according to Claim 63~~  
A knife edge conditioning apparatus for manually modifying the physical structure along an elongated edge of a stroked knife blade, the blade having two faces that at their terminus have been sharpened forming two edge facets that intersect to create the elongated edge at the junction of the two facets, said

apparatus comprising at least one precision knife guide having a planar knife face contacting surface along which the face of the blade can be stroked in sustained moving contact with a hardened surface of an object located adjacent to and at an angle to said guide surface, said object being non-motor-driven, said hardened surface being of non-planar shape to maintain sustained contact with and locally stress and fracture the edge of the blade at the location of contact with said hardened surface on repeated stroking to create a microscopic serration along the edge, said hardened surface being substantially free of abrasive particles and free of sharp edges characteristic of abrading, skiving and metal removing tools, where said object is mounted on a support member, said knife guide being pivotally mounted to said support member, and adjusting structure controlling the angle of orientation of said knife guide.

77. (previously presented) An apparatus according to Claim 63 where said knife guide comprises at least two aligned rods or rollers which define an extended guide plane, and said extended guide plane being said knife face contacting surface.

78. (previously presented) An apparatus according to Claim 63 where said hardened surface has a surface roughness no greater than 10 microns.

79. (previously presented) An apparatus according to Claim 63 including a physical member to contact the knife blade and apply

a force to press the blade against said knife guide as the blade is moved along said knife guide with the blade edge in sustained contact with said hardened surface.

80. (previously presented) An apparatus according to Claim 63 comprising a set of said hardened surfaces and one of said precision knife guides adjacent said hardened surfaces, including an inverted U shaped spring member having cantilevered resilient arms and an intermediate connection portion, said connecting portion being between said set of hardened surfaces, and each of said arms of said spring member extending downwardly generally along a portion of a respective one of said precision knife guides.

81. (previously presented) In a knife-edge enhancing apparatus for modifying the physical structure along an elongated edge of a knife blade, the blade having two faces that at their terminus have been sharpened forming two edge facets that intersect to create the elongated edge at the junction of the two edge facets, said apparatus comprising at least one precision angle knife guide with which one face of the blade maintains sustained contact in order to guide the elongated edge of the blade into sustained contact with a blade edge contacting member, the improvement being in that in place of a sharpening member having an abrasive surface as the contacting member, the contacting member is a knife-edge conditioning member which is a hardened

surface of an object located to position a plane of one adjacent edge facet at a precise predetermined non-zero degree angle B relative to the plane of contact with said hardened surface, there being at least one of said object with said hardened surface disposed at said at least one precision angle knife guide whereby each of the blade faces may selectively be placed against said guide surface of said at least one precision angle knife guide to selectively dispose each of the facets against said hardened surface at said angle B, said hardened surface being sufficiently non-abrasive which in combination with said knife guide comprises means to repeatedly create and fracture a microstructure along the edge of the blade at the extreme terminus of the edge facets during repeated contact of the facets and said hardened surface to create a microserrated edge, said hardened surface of said object being restrained in a predetermined rest position relative to and adjacent said precision knife guide by a restraining mechanism that applies a restraining force to position said object in said rest position, and said object being displaceable against the force of said mechanism by the force applied by the blade facet contacting said hardened surface of said object.

82. (previously presented) In a knife-edge enhancing apparatus for modifying the physical structure along an elongated edge of a knife blade, the blade having two faces that at their terminus

have been sharpened forming two edge facets that intersect to create the elongated edge at the junction of the two edge facets, said apparatus comprising at least one precision angle knife guide with which one face of the blade maintains sustained contact in order to guide the elongated edge of the blade into sustained contact with a blade edge contacting member, the improvement being in that in place of a sharpening member having an abrasive surface as the contacting member, the contacting member is a knife-edge conditioning member which is a hardened surface of an object located to position a plane of one adjacent edge facet at a precise predetermined non-zero degree angle B relative to the plane of contact with said hardened surface, there being at least one of said object with said hardened surface disposed at said at least one precision angle knife guide whereby each of the blade faces may selectively be placed against said guide surface of said at least one precision angle knife guide to selectively dispose each of the facets against said hardened surface at said angle B, said hardened surface being sufficiently non-abrasive which in combination with said knife guide comprises means to repeatedly create and fracture a microstructure along the edge of the blade at the extreme terminus of the edge facets during repeated contact of the facets and said hardened surface to create a microserrated edge, a predetermined fixed angle C being formed between said guide

surface of said knife guide and said plane of contact of said hardened surface, said hardened surface having a hardness above Rockwell C-60, said object being mounted to a support member, said knife guide being pivotally mounted to said support member, and adjusting structure controlling the angle of orientation of said knife guide.

83-88. (canceled)